

Appl. No. 10/803,047  
Reply to Office action of November 27, 2007

#### REMARKS/ARGUMENTS

Request for Continued Examination:

5 The applicant respectfully requests continued examination of the above-indicated application as per 37 CFR 1.114.

10 The Examiner is thanked for the thorough examination of this application. Claims 1-3, 6-12, 16, 18-20 and 23, however, stand rejected in the Office action of November 27, 2007. As set forth above, claims 4, 11, 13-14 and 17 have been cancelled without prejudice, claims 1, 3, 10, 12, 18 and 23 have been amended without entering any new matters and claims 5, 15, 21 and 22 are withdrawn. Accordingly, elected claims 1-3, 6-10, 12, 16, 18-20 and 23 currently are pending for the following examination. Favorable reconsideration and allowance of these claims are respectfully requested.

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#### Response to the claim rejections:

20 Claim 1 is rejected under 35 U.S.C. 102(e) as being unpatentable over Imamura (U.S. Patent No. 6862262). Applicants have amended claim 1 and assert that the amended claim 1 is patentable over Imamura because Imamura fails to teach or suggest all of the claimed limitations. The amended claim 1 recites:

25 (Currently Amended) An apparatus for sampling timing compensation at a receiver of a communication system, wherein each of a first symbol and a second symbols comprises comprising at least two pilot signals, the pilot signals of each of the first and second symbols have a first part transmitted via a first pilot subchannel and a second part transmitted via a second pilot subchannels-respectively and the first and the second pilot subchannels comprise a first and a second pilot indexes respectively, the apparatus  
30 comprising:

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- 5 a pilot subchannel estimator for generating a first frequency response of each of the first and the second symbols respectively according to the first part of the pilot signals of each of the first and the second symbols transmitted over the first pilot subchannel and for generating a second frequency response of each of the first and second symbols respectively according to the second part of the pilot signals of each of the first and second symbols transmitted over the second pilot subchannel;
- 10 a timing offset estimator, coupled to the pilot subchannel estimator, for calculating a timing offset according to a first difference between the first frequency responses of the first and second symbols, a second difference between the second frequency responses of the first and second symbols and a difference between the first and second differences frequency response; and
- 15 a phase rotator, coupled to the timing offset estimator, for performing sampling timing compensation according to an phase rotation corresponding to the timing offset.

*(Emphasis Added)*

- 20 The claimed invention teaches "calculating a timing offset according to a first difference between the first frequency responses of the first and second symbols, a second difference between the second frequency responses of the first and second symbols and a difference between the first and second differences". An exemplary embodiment of the claimed invention is described on page 7 in the specification of this application, which shows an accumulated timing offset being estimated by
- 25 equations (1-3) and (1-4) where exemplary first difference  $\Delta\hat{\theta}_{n,k} = \angle\hat{H}_{n,k} - \angle\hat{H}_{n-1,k}$ , second difference  $\Delta\hat{\theta}_{n,l}$  and difference  $\Delta\hat{\theta}_{n,k} - \Delta\hat{\theta}_{n,l}$  between the first and second differences are recited. Imamura, on the other hand, at most teaches a phase error calculation circuit 204 for calculating a residual phase error with high estimation accuracy using the residual phase error of each subcarrier calculated by differential
- 30 detection (Imamura: Col. 5, lines 59-63), but is silent about "calculating a timing

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offset according to a difference between a first and a second differences which are calculated according to first and second frequency responses respectively". Therefore, the amended claim 1 is patentable over Imamura for at least the above-mentioned reasons. Besides, the other cited references Singh (U.S. Patent No. 7139320) and  
5 Matheus et al (U.S. Patent No. 7009932) fail to compensate for the deficiencies of Imamura. Accordingly, claim 1 is allowable over Imamura in view of Singh and/or Matheus et al. Since claims 2, 3, and 6-9 are dependent upon claim 1, if claim 1 is found to be allowable, so too should the dependent claims.

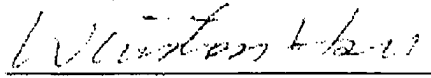
10 Applicants also assert that claims 10, 18 and 23 are patentable over Imamura in view of Singh and/or Matheus et al. because of at least the same reasons placing claim 1 allowable. Since claims 12, 16, and 19-20 are respectively dependent upon claims 10 and 18, if claims 10 and 18 are found to be allowable, so too should the dependent claims.

15 **Conclusion:**

In view of the above remarks/arguments and amendments set forth above, Applicants respectfully request allowance of claims 1-3, 6-10, 12, 16, 18-20 and 23. If  
20 the Examiner believes that a telephone interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

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Sincerely yours,



Date: 02.19.2008

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- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)